

REUP 1/09/87 -
From ANONYMOUS Sender
TORONTO, ONTARIO
Sent 12/30/86

CANNOT IDENTIFY
Source - ASK
EG TO INTERPRET -
Bob

MACOM BLACK BOX -- THE U7 PROCESSOR

F000 1203 MOV Rn,A

F002 EB TRAP 20 ----> F26F

F003 D4B4 INV Rn

F005 0A RETS

F006 68 F007 17 FROM INDEXED LDA AT LOC. F66B

VALUE TABLE FOR INDEXED LDA @ LOC. FC71 & F657

F008 0E 00 04 0F 0D 07 01 04 02 0E 0F 02 0B 0D 08 01 03 0A 0A 06 06 0C 0C 0B

F020 05 09 09 05 00 03 07 08 04 0F 01 0C 0E 08 08 02 0D 04 06 09 02 01 0B 07

F038 0F 05 0C 0B 09 03 07 0E 03 0A 0A 00 05 06 00 0D

VALUE TABLE FOR INDEXED LDA @ LOC. FC68

F048 0F 03 01 0D 08 04 0E 07 06 0F 0B 02 03 08 04 0E 09 0C 07 00 02 01 0D 0A

F060 0C 06 00 09 05 0B 0A 05 00 0D 0E 08 07 0A 0B 01 0A 03 04 0F 0D 04 01 02

F078 05 0B 08 06 0C 07 06 0C 09 00 03 05 02 0E 0F 09

VALUE TABLE FOR INDEXED LDA @ LOC. FCF5

F088 0A 0D 00 07 09 00 0E 09 06 03 03 04 0F 06 05 0A 01 02 0D 08 0C 05 07 0E

F0A0 0B 0C 04 0B 02 0F 08 01 0D 01 06 0A 04 0D 09 00 08 06 0F 09 03 08 00 07

F0B8 0B 04 01 0F 02 0E 0C 03 05 0B 0A 05 0E 02 07 0C

VALUE TABLE FOR INDEXED LDA @ LOC. FC56

F0C8 07 0D 0D 08 0E 0B 03 05 00 06 06 0F 09 00 0A 03 01 04 02 07 08 02 05 0C

F0E0 0B 01 0C 0A 04 0E 0F 09 0A 03 06 0F 09 00 00 06 0C 0A 0B 01 07 0D 0D 08

F0F8 0F 09 01 04 03 05 0E 0B 05 0C 02 07 08 02 04 0E

VALUE TABLE FOR INDEXED LDA @ LOC. FC4D

F108 02 0E 0C 0B 04 02 01 0C 07 04 0A 07 0B 0D 06 01 08 05 05 00 03 0F 0F 0A

F120 0D 03 00 09 0E 08 09 06 04 0B 02 08 01 0C 0B 07 0A 01 0D 0E 07 02 08 0D

F138 0F 06 09 0F 0C 00 05 09 06 0A 03 04 00 05 0E 03

VALUE TABLE FOR INDEXED LDA @ LOC. FC44

F148 0C 0A 01 0F 0A 04 0F 02 09 07 02 0C 06 09 08 05 00 06 0D 01 03 0D 04 0E

F160 0E 00 07 0B 05 03 0B 08 09 04 0E 03 0F 02 05 0C 02 09 08 05 0C 0F 03 0A

F178 07 0B 00 0E 04 01 0A 07 01 06 0D 00 0B 08 06 0D

VALUE TABLE FOR INDEXED LDA @ LOC. FC3B

F188 04 0D 0B 00 02 0B 0E 07 0F 04 00 09 08 01 0D 0A 03 0E 0C 03 09 05 07 0C

F1A0 05 02 0A 0F 06 08 01 06 01 06 04 0B 0B 0D 0D 08 0C 01 03 04 07 0A 0E 07

F1B8 0A 09 0F 05 06 00 08 0F 00 0E 05 02 09 03 02 0C

VALUE TABLE FOR INDEXED LDA @ LOC. FC32

F1C8 0D 01 02 0F 08 0D 04 08 06 0A 0F 03 0B 07 01 04 0A 0C 09 05 03 06 0E 0B

F1E0 05 00 00 0E 0C 09 07 02 07 02 0B 01 04 0E 01 07 09 04 0C 0A 0E 08 02 0D

F1F8 00 0F 06 0C 0A 09 0D 00 0F 03 03 05 05 06 08 0B

VALUE TABLE FOR INDIRECT LDA's OF TRAP 18

F208 65 66 69 72 69 6E 67

F20F CE 35 4E 8D E0 17 C5 0C SEE LOC F49D

F217 B0 5C 4C 5A 71 08 87 91 SEE LOC F4B7

VALUE TABLE FOR INDEXED LDA @ LOC. F2A0

of bytes expected from u19 cpu during trap 20

F21F 05 01 08 0C 13 04 04 01 01 02 14 09 08 01 02 01 01 01 14 02

BRANCH TABLE FOR INDEXED BRANCH FROM LOC. FDD1

* = recieved command from u19

* = total bytes recieved from u19 (inc. command byte)

F233	8CF343	0	BR @n (05)	4a-4d received from cpu	
F236	8CF36A	1	BR @n (01)		
F239	8CF38C	2	BR @n (08)	4a-50	" " "
F23C	8CF3B5	3	BR @n (0C)	4a-54	" " "
F23F	8CF3E6	4	BR @n (13)	4a-5b	
F242	8CF498	5	BR @n (04)	4a-4c	to u5 18 bytes
F245	8CF498	6	BR @n (04)	4a-4c	to u5 18 bytes
F248	8CF556	7	BR @n (01)		to u19 12 bytes (3f), (40), (41), (5a-61), 00
F24B	8CF519	8	BR @n (01)		to u5 1 byte
F24E	8CF528	9	BR @n (02)	4a	
F251	8CF5F9	a	BR @n (14)	4a-5c	ramcheck, zero ram !!!!!, set sp = 79
F254	8CF57F	b	BR @n (09)	4a-51	
F257	8CF5B4	c	BR @n (08)	4a-50	
F25A	8CF5D3	d	BR @n (01)		to u19 -- send 5 bytes of id#
F25D	8CF56E	e	BR @n (02)	4a	to u19 -- make c3 hi
F260	8CF579	f	BR @n (01)		to u19 -- send u19 the A port data
F263	8CF498	10	BR @n (01)		to u5 18 bytes
F266	8CF61E	11	BR @n (01)		
F269	8CF63C	12	BR @n (14)	4a-5c	ramcheck, rom checksum
F26C	8CF725	13	BR @n (02)	4a	to u19 -- send r4A to cpu

final result of all branches lead to trap 20 to receive another command

TRAP 20 F002,FDCC

recieve command and associated bytes, if any,
from cpu (u19)
store associated bytes starting at 004A
r4A-5C = command bytes buffer 6c,6d =command bytes buffer address (004A)
r6E=timer 6F=# bytes to receive 70,71=timer 72=received command & flag

F26F	72FF72	MOV %n,Rn	load Rn(72) <--- FF	
F272	88050371	MOVD %n,Rn	load Rn(70) <--- 05 / Rn(71) <--- 03	
F276	5201	MOV %n,B	load B reg. <--- 01	
F278	5301	AND %n,B	B reg. <--- B reg. .AND. 01	<-----\
F27A	5501	XOR %n,B	B reg. <--- B reg. .XOR. 01	
F27C	9206	MOVP B,Pn	store Pn(06) <--- B reg. - to B port	
F27E	7DFF72	CMP %n,Rn	? Rn(72) = FF	
F281	E207	JZ/JEQ	- to F28A if Rn(72) = FF	
F283	DB71	DECD Rn	DEC reg. pair Rn(70)/Rn(71)	
F285	E303	JC/JHS	- to F28A if Rn(70) <> FF	
F287	8EFDD6	CALL @n	gosub FDD6	
F28A	8004	MOVP Pn,A	<- A port -> A	
F28C	2702E9	BTJZ %n,A	if bit 2 in A reg. is 0 then F278 -----/	
F28F	7DFF72	CMP %n,Rn	is Rn(72) = FF ?	
F292	E615	JNZ/JNE	No, then goto F2A9 ----->-----\	
F294	910A	MOVP Pn,B	load B reg. B <--- Pn(0A) D Port	
F296	5D14	CMP %n,B	is B = 14	
F298	E703	JNC/JL	if B < 14 then goto F29D -----\	
F29A	8EFDD6	CALL @n	gosub FDD6 -loop till reset	
F29D	724A6D	MOV %n,Rn	load Rn(6D) <--- 4A <----/	
F2A0	AAF21F	LDA @n(B)	load A w/value at (F21F + B reg.)	
F2A3	D06F	MOV A,Rn	Rn(6E) <--- A reg.	
F2A5	D172	MOV B,Rn	Rn(72) <--- B reg.	
F2A7	E006	JMP	goto F2AF -----\	
F2A9	800A	MOVP Pn,A	load A reg. w/ Pn(0A) <---- ----D port-----/	
F2AB	9B6D	STA *Rn	store at addr [Rn(6C & 6D]	-->004A

F2AD	D36D	INC Rn	Rn(6D) <--- Rn(6D) + 1	+1
F2AF	2208	MOV %n,A	load A reg. w/08	<-----/ flag cpu
F2B1	8408	ORP A,Pn	Pn(08) <--- Pn(08) .OR. 08	c3=HI
F2B3	72FF6E	MOV %n,Rn	Rn(6E) <--- FF	wait for cpu
F2B6	9104	MOV Pn,B	B reg. <--- [Pn(04)]	<-----\
F2B8	570206	BTJZ %n,B	if bit 2 in B reg. is 0 then F2C1	<-----\
F2BB	DA6EF8	DJNZ Rn	DEC Rn(6E) if <> 0 then F2B6	<-----\
F2BE	8EFDD6	CALL @n	gosub FDD6	
F2C1	A3F708	ANDP %n,Pn	Pn(08) <--- Pn(08) .AND. 08	c3=low <-----/
F2C4	DA6FAB	DJNZ Rn	DEC Rn(6F) if <> 0 then PC = PC - 55: goto F272	
F2C7	A20006	MOV Pn,Pn	load Pn(06) with 0	Port B = 0
F2CA	0A	RETS	return to sender -- do the command	

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TRAP 15 F564,F56A, F57B, F5E9,F5F1, F727

Give the cpu (u19) the value in the A reg through buffer u12

F2CB	72FF6E	MOV %n,Rn	Rn(6E) <-- FF	WAIT TILL A1 = HI
F2CE	DA6E03	DJNZ Rn	Rn(6E) <-- Rn(6E) - 1: if Rn(6E) <> 0 -\ <-\	
F2D1	8EFDD6	CALL @n	gosub FDD6	
F2D4	A70204F6	BTJZP %n,Pn	if bit 2 of Pn(04) is 0 then F2CE	<-/ --
F2D8	A7800404	BTJZP %n,Pn	if bit 7 of Pn(04) is 0 then goto F2E0	<-----\
F2DC	8206	MOV P A,Pn	Pn(06) <--- A reg.	B port
F2DE	E005	JMP	/- goto F2E5	
F2E0	820A	MOV P A,Pn	Pn(0A) <--- A reg.	<-----/
F2E2	A2FF0B	MOV P %n,Pn	Pn(0B) <--- FF	DO VIDEO ???
F2E5	2208	MOV %n,A	<-/ A reg. <--- 08	
F2E7	8408	ORP A,Pn	Pn(08) <--- Pn(08) .OR. A reg.	c3 = hi
F2E9	72FF6E	MOV %n,Rn	Rn(6E) <--- FF	WAIT TILL A1 = HI
F2EC	DA6E03	DJNZ Rn	DEC Rn(6E) if <> 0 then goto F2F2	<-\ <-----\
F2EF	8EFDD6	CALL @n	gosub FDD6	
F2F2	A60204F6	BTJOP %n,Pn	if bit 2 of Pn(04) is 0 then F2EC	--/ <-----/
F2F6	A2000B	MOV P %n,Pn	Pn(0B) <--- 00	D port input only
F2F9	A3F708	ANDP %n,Pn	Pn(08) <--- Pn(08) .AND. F7	c3 = low
F2FC	0A	RETS	return to sender	

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TRAP 16 F4B1,F4E0,F4EC,F4F8,F524 talk to U5

F2FD	72626B	MOV %n,Rn	Rn(6B) <--- 62	
F300	9A6B	LDA *Rn	A reg. <--- value at address in Rn(6B)	<-----\
F302	8206	MOV P A,Pn	Pn(06) <--- A reg.	B port
F304	D36B	INC Rn	Rn(6B) <--- Rn(6B) + 1	
F306	A3EF08	ANDP %n,Pn	Pn(08) <--- Pn(08) .AND. EF	strobe
F309	A41008	ORP %n,Pn	Pn(08) <--- Pn(08) .OR. 10	c4
F30C	CAF2	DJNZ B	DEC B reg.: JMP if not 0 to F300	<-----/
F30E	0A	RETS	return to sender	

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ENTRY POINT FOR INT 1,2,3 IF NOT IN FULL EXPANSION MODE (PO BIT 7=1)

CALLED ONLY IF INTERRUPT 1,2,3

F30F	06	DINT		
F310	A20006	MOV P %n,Pn	00 --> P6	B PORT DATA
F313	A20008	MOV P %n,Pn	00 --> P8	C PORT DATA
F316	A2000A	MOV P %n,Pn	00 --> P10	D PORT DATA
F319	A2FF09	MOV P %n,Pn	255 --> P9	C DATA DIRECTION
F31C	A2FF0B	MOV P %n,Pn	255 --> P11	D DATA DIRECTION
F31F	A22000	MOV P %n,Pn	32 --> P0	SINGLE CHIP MODE
F322	A22003	MOV P %n,Pn	32 --> P3	LOW POWER MODE
F325	01	IDLE		

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PROGRAM WILL JUMP HERE ON GOOD STARTUP FROM FF62

F326	06	DINT			
F327	A20010	MOVP %n,Pn	00 --> P16	disable ints 4 & 5	
F32A	A23000	MOVP %n,Pn	48 --> P0	single chip mode enable int 3	
F32D	A31000	ANDP %n,Pn		enable int 3	
F330	5279	MOV %n,B	\$79 --> B		
F332	0D	LDSP	B --> SP		
F333	A20006	MOVP %n,Pn	00 --> P6	B PORT DATA	
F336	A29508	MOVP %n,Pn	\$95 --> P8	C PORT DATA	
F339	A2FF09	MOVP %n,Pn	255 --> P9	C PORT DIRECTION	
F33C	A2000B	MOVP %n,Pn	00 --> P11	D PORT DIRECTION	
F33F	05	EINT			
F340	8CFDC8	BR @n		####	
=====					
*** FDD1 (I0) ***	F343	984B4F	MOVD Rn,Rn		
F346	984D51	MOVD Rn,Rn			
F349	981B4B	MOVD Rn,Rn	(1A,1B,1C,1D) -> (4A,4B,4C,4D) -> (4E,4F,50,51)		
F34C	981D4D	MOVD Rn,Rn			
F34F	324E	MOV Rn,B	R4E --> B	Determine address of	
F351	530F	AND %n,B	00001111	data table for input to	
F353	D13C	MOV B,Rn	B --> R3C	trap 18.	
F355	5303	AND %n,B	00000011		
F357	5C07	MPY %n,B	B*7		
F359	581E	ADD %n,B	B+1E	= 25,2C or 33	
F35B	D66B	XCHB Rn	B <--> R6B		
F35D	ED	TRAP 18 ----> F76B			
F35E	724A6B	MOV %n,Rn	4A --> R6B		
F361	72426D	MOV %n,Rn	42 --> R6D		
F364	5208	MOV %n,B	8 --> B	Save result of DES	
F366	EC	TRAP 19 ----> F74F		(4A-51) -> (42-49)	
F367	8CFDC8	BR @n		####	
=====					
*** FDD1 (I1) ***	F36A	72426B	MOV %n,Rn	42 --> R6B	
F36D	724A6D	MOV %n,Rn	4A --> R6D		
F370	5208	MOV %n,B	8 --> B	(42-49) -> (4A-51)	
F372	EC	TRAP 19 ----> F74F			
F373	323C	MOV Rn,B			
F375	530C	AND %n,B			
F377	CC	RR B			
F378	CC	RR B			
F379	5C07	MPY %n,B			
F37B	581E	ADD %n,B		= 25,2C or 33	
F37D	D66B	XCHB Rn			
F37F	ED	TRAP 18 ----> F76B			
F380	724A6B	MOV %n,Rn			
F383	72426D	MOV %n,Rn			
F386	5208	MOV %n,B			
F388	EC	TRAP 19 ----> F74F		(4A-51) -> (42-49)	
F389	8CFDC8	BR @n		####	
=====					
*** FDD1 (I2) ***	F38C	724A6B	MOV %n,Rn		
F38F	72136D	MOV %n,Rn			
F392	5207	MOV %n,B			
F394	EC	TRAP 19 ----> F74F		(4A-50) -> (13-19)	
F395	72426B	MOV %n,Rn			
F398	724A6D	MOV %n,Rn			
F39B	5208	MOV %n,B			
F39D	EC	TRAP 19 ----> F74F		(42-49) -> (4A-51)	

F39E	323C	MOV Rn,B	
F3A0	5303	AND %n,B	
F3A2	5C07	MPY %n,B	
F3A4	581E	ADD %n,B	= 25,2C or 33
F3A6	D66B	XCHB Rn	
F3A8	ED	TRAP 18 ----> F76B	
F3A9	72426D	MOV %n,Rn	
F3AC	724A6B	MOV %n,Rn	
F3AF	5208	MOV %n,B	
F3B1	EC	TRAP 19 ----> F74F	(4A-51) -> (42-49)
F3B2	8CFDC8	BR @n	####
*** FDD1 (I3) ***	F3B5 98533E	MOVD Rn,Rn	(52,53) 54 -> 3C (3D,3E)
F3B8	42543C	MOV Rn,Rn	\----->-----/
F3BB	72426B	MOV %n,Rn	
F3BE	72026D	MOV %n,Rn	
F3C1	5207	MOV %n,B	
F3C3	EC	TRAP 19 ----> F74F	(42-48) -> (02-08)
F3C4	72136B	MOV %n,Rn	(r13 - r19) xor (r02 - r08) --> (r02 - r08)
F3C7	72026D	MOV %n,Rn	
F3CA	5207	MOV %n,B	
F3CC	EE	TRAP 17 ----> F75A	7 byte xor
F3CD	72026B	MOV %n,Rn	
F3D0	ED	TRAP 18 ----> F76B	
F3D1	453D4E	XOR Rn,Rn	
F3D4	453E4F	XOR Rn,Rn	
F3D7	453C50	XOR Rn,Rn	(3d,3e,3c) xor (4e,4f,50)
F3DA	724A6B	MOV %n,Rn	
F3DD	72026D	MOV %n,Rn	
F3E0	5207	MOV %n,B	
F3E2	EC	TRAP 19 ----> F74F	(4A-50) -> (02-08)
F3E3	8CFDC8	BR @n	####
*** FDD1 (I4) ***	F3E6 724A6B	MOV %n,Rn	
F3E9	720C6D	MOV %n,Rn	
F3EC	5207	MOV %n,B	
F3EE	EC	TRAP 19 ----> F74F	(4A-50) -> (0C-12)
F3EF	98524B	MOVD Rn,Rn	
F3F2	98544D	MOVD Rn,Rn	
F3F5	98564F	MOVD Rn,Rn	
F3F8	985851	MOVD Rn,Rn	(51-58) -> (4A-51)
F3FB	72026B	MOV %n,Rn	
F3FE	72526D	MOV %n,Rn	
F401	5207	MOV %n,B	
F403	EC	TRAP 19 ----> F74F	(02-08) -> (52-58)
F404	455952	XOR Rn,Rn	
F407	455A53	XOR Rn,Rn	
F40A	455B54	XOR Rn,Rn	(59,5a,5b) xor (52,53,54)
F40D	425B3C	MOV Rn,Rn	
F410	D859	PUSH Rn	
F412	D85A	PUSH Rn	
F414	72526B	MOV %n,Rn	
F417	ED	TRAP 18 ----> F76B	
F418	D95A	POP Rn	
F41A	D959	POP Rn	

F41C	72136B	MOV %n,Rn	
F41F	720C6D	MOV %n,Rn	
F422	72076E	MOV %n,Rn	
F425	9A6B	LDA *Rn	? (13-19) = (0C-12)
F427	B6	XCHB A	
F428	9A6D	LDA *Rn	
F42A	63	AND B,A	
F42B	E64E	JNZ/JNE	TO F47B
F42D	D36B	INC Rn	
F42F	D36D	INC Rn	
F431	DA6EF1	DJNZ Rn	TO F425
F434	77803C4C	BTJZ %n,Rn	TO F484
F438	4D4A09	CMP Rn,Rn	
F43B	E60A	JNZ/JNE	TO F447
F43D	4D4B0A	CMP Rn,Rn	
F440	E605	JNZ/JNE	TO F447
F442	4D4C0B	CMP Rn,Rn	? (4A,4B,4C) = (09,0A,0B)
F445	E034	JMP	TO F47B
F447	984063	MOVD Rn,Rn	
F44A	424164	MOV Rn,Rn	(3F,40,41) -> (62,63,64)
F44D	06	DINT	
F44E	B0	TSTA/CLRC	CLEAR CARRY
F44F	4E5962	DAC Rn,Rn	
F452	495A63	ADC Rn,Rn	
F455	790064	ADC %n,Rn	
F458	E32A	JC/JHS	TO F484
F45A	D565	CLR Rn	
F45C	983E67	MOVD Rn,Rn	(3D,3E) -> (66,67)
F45F	07	SETC	SET CARRY
F460	4F6265	DSB Rn,Rn	
F463	4B6366	SBB Rn,Rn	
F466	4B6467	SBB Rn,Rn	
F469	E719	JNC/JL	TO F484
F46B	986340	MOVD Rn,Rn	(62,63,64) -> (39,40,41)
F46E	426441	MOV Rn,Rn	
F471	EA	TRAP 21 ---> F73D	
F472	D179	MOV B,Rn	
F474	984B0A	MOVD Rn,Rn	
F477	424C0B	MOV Rn,Rn	(4A,4B,4C) -> (09,0A,0B)
F47A	05	EINT	
F47B	724A6B	MOV %n,Rn	(r4a - r50) xor (r0c - r12) --> (r0c - r12)
F47E	720C6D	MOV %n,Rn	
F481	5207	MOV %n,B	
F483	EE	TRAP 17 ---> F75A	7 byte xor
F484	05	EINT	
F485	88000063	MOVD %n,Rn	
F489	88000065	MOVD %n,Rn	
F48D	88000067	MOVD %n,Rn	

F491 88000069 MOVD %n,Rn zero r62 - r69
F495 8CFDC8 BR @n

####

*** FDD1 (I5) *** F498 7D1072 CMP %n,Rn RECEIVED COMMAND 10?
(I6), (I10)

F49B E60C JNZ/JNE to F4A9

F49D 88F20F6B MOVD %n,Rn

F4A1 72626D MOV %n,Rn

F4A4 5208 MOV %n,B

F4A6 EC TRAP 19 ---> F74F (F20F-F216) -> (62-69)

F4A7 D56A CLR Rn

++++

F4A9 5208 MOV %n,B

F4AB A39F08 ANDP %n,Pn

c5 & c6 = low

F4AE A44008 ORP %n,Pn

c6 = hi

F4B1 EF TRAP 16 ---> F2FD talk to u5 -- transfer 8 bytes

F4B2 7D1072 CMP %n,Rn

RECEIVED COMMAND 10?

F4B5 E60E JNZ/JNE to F4C5

F4B7 88F2176B MOVD %n,Rn

F4BB 72626D MOV %n,Rn

F4BE 5208 MOV %n,B

F4C0 EC TRAP 19 ---> F74F (F217-F21E) -> (62-69)

F4C1 D56A CLR Rn

++++

F4C3 E013 JMP to F4D8

F4C5 8800004E MOVD %n,Rn

F4C9 88000050 MOVD %n,Rn r4D - r50 = 00 4 bytes

F4CD D551 CLR Rn

F4CF 5208 MOV %n,B

F4D1 724A6B MOV %n,Rn

F4D4 72626D MOV %n,Rn

F4D7 EC TRAP 19 ---> F74F (4A-51) -> (62-69)

F4D8 5208 MOV %n,B

F4DA A39F08 ANDP %n,Pn c5 & c6 = low

F4DD A46008 ORP %n,Pn c5 & c6 = hi

F4E0 EF TRAP 16 ---> F2FD talk to u5 -- transfer 8 bytes

F4E1 A39F08 ANDP %n,Pn c5 & c6 = low

F4E4 A40008 ORP %n,Pn c6 = hi

F4E7 427462 MOV Rn,Rn

F4EA 5201 MOV %n,B

F4EC EF TRAP 16 ---> F2FD talk to u5 -- transfer 1 byte (r74)

F4ED A39F08 ANDP %n,Pn c5 & c6 = low

F4F0 A42008 ORP %n,Pn c5 = hi

F4F3 427362 MOV Rn,Rn

F4F6 5201 MOV %n,B

F4F8 EF TRAP 16 ---> F2FD talk to u5 -- transfer 1 byte (r73)

F4F9 7D1072 CMP %n,Rn RECEIVED COMMAND 10?

F4FC E218 JZ/JEQ

F4FE 7D0672 CMP %n,Rn RECEIVED COMMAND 06?

F501 E205 JZ/JEQ

F503 720C6B MOV %n,Rn r0c - r12 for trap 18

F506 E004 JMP

F508 88F2086B MOVD %n,Rn LOAD POINTER TO DATA TABLE FOR TRAP 18

F50C ED TRAP 18 ---> F76B


```

F50D 5208      MOV %n,B
F50F 724A6B    MOV %n,Rn
F512 72626D    MOV %n,Rn
F515 EC        TRAP 19 ----> F74F          (4A-51) -> (62-69)

F516 8CFDC8    BR @n                      #####
-----
*** FDD1 (I8) *** F519 A39F08      ANDP %n,Pn
F51C A40008    ORP %n,Pn
F51F 427562    MOV Rn,Rn
F522 5201      MOV %n,B
F524 EF        TRAP 16 ----> F2FD          talk to u5 -- transfer 1 byte (u75)

F525 8CFDC8    BR @n                      #####
-----
*** FDD1 (I9) *** F528 424A4F      MOV Rn,Rn          (4A) -> (4F)
F52B 98404B    MOVD Rn,Rn
F52E 42414C    MOV Rn,Rn          (3F,40,41) -> (4A,4B,4C)
F531 983E51    MOVD Rn,Rn          (3D,3E) -> (50,51)
F534 EA        TRAP 21 ----> F73D      GET B
F535 4D0179    CMP Rn,Rn          ? B = (79)
F538 E206      JZ/JEQ
F53A 8800004E   MOVD %n,Rn
F53E E004      JMP
F540 88FFFF4E   MOVD %n,Rn

F544 72426B    MOV %n,Rn
F547 ED        TRAP 18 ----> F76B

F548 88004A6B   MOVD %n,Rn
F54C 88005A6D   MOVD %n,Rn
F550 5208      MOV %n,B
F552 EC        TRAP 19 ----> F74F          (4A-51) -> (5A-61)
F553 8CFDC8    BR @n                      #####
-----
*** FDD1 (I7) *** F556 723F6B      MOV %n,Rn
F559 520B      MOV %n,B          12 byte xfer to u19
F55B 5D08      CMP %n,B          (3f)(40)(41)(5a-61)00
F55D E603      JNZ/JNE
F55F 725A6B    MOV %n,Rn
F562 9A6B      LDA *Rn
F564 F0        TRAP 15 ----> F2CB
F565 D36B      INC Rn
F567 CAF2      DJNZ B to f55b
F569 B5        CLR A
F56A F0        TRAP 15 ----> F2CB
F56B 8CFDC8    BR @n                      #####
-----
*** FDD1 (IE) *** F56E 124A      MOV Rn,A          data from u19
F570 23F7      AND %n,A
F572 2410      OR %n,A
F574 8208      MOVP A,Pn          make c4 hi
F576 8CFDC8    BR @n                      #####
-----
*** FDD1 (IOF) *** F579 8004      MOVP Pn,A          A port data to cpu
F57B F0        TRAP 15 ----> F2CB

F57C 8CFDC8    BR @n                      #####
-----

```


*** FDD1 (IB) *** F57F 124A MOV Rn,A

F581 B3 INC A

F582 C5 CLR B

F583 07 SETC

F584 CF RLC B

F585 BAFD DJNZ A

F587 D171 MOV B,Rn

F589 333A AND Rn,B

F58B E614 JNZ/JNE to f5a1

F58D 324A MOV Rn,B

FIGURE DESTINATION

F58F 5C07 MPY %n,B

F591 581E ADD %n,B

F593 D66D XCHB Rn

F595 724B6B MOV %n,Rn

source

F598 5207 MOV %n,B

#of bytes

F59A EC TRAP 19 ----> F74F

7 byte register xfer

F59B F1 TRAP 14 ----> F72B

b=32byte xor

F59C D13B MOV B,Rn

F59E 44713A OR Rn,Rn

F5A1 8800004B MOVD %n,Rn

zero 4a-51

F5A5 8800004D MOVD %n,Rn

F5A9 8800004F MOVD %n,Rn

F5AD 88000051 MOVD %n,Rn

F5B1 8CFDC8 BR @n

####

*** FDD1 (IC) *** F5B4 76103A18 BTJD %n,Rn JMP if 1 = is this a new id?

F5B8 724A6B MOV %n,Rn

(4A-4D) -> (1A-1D)

F5BB 721A6D MOV %n,Rn

F5BE 5204 MOV %n,B

F5C0 EC TRAP 19 ----> F74F

F5C1 724E6B MOV %n,Rn

(4E-50) -> (73-75)

F5C4 72736D MOV %n,Rn

F5C7 5203 MOV %n,B

F5C9 EC TRAP 19 ----> F74F

F5CA F1 TRAP 14 ----> F72B

F5CB D13B MOV B,Rn

F5CD 74103A OR %n,Rn

F5D0 8CFDC8 BR @n

####

*** FDD1 (ID) *** F5D3 F1 TRAP 14 ----> F72B

F5D4 123A MOV Rn,A

F5D6 231F AND %n,A 00011111 00-1f

F5D8 4D013B CMP Rn,Rn

F5DB E602 JNZ/JNE

F5DD 2480 OR %n,A 10000000 00-9f

F5DF B8 PUSH A

F5E0 EA TRAP 21 ----> F73D

F5E1 B9 POP A

F5E2 4D0179 CMP Rn,Rn

F5E5 E602 JNZ/JNE

F5E7 2440 OR %n,A 01000000 00-df A needs to be DF, will be

fifth byte of id#

F5E9 F0 TRAP 15 ----> F2CB

F5EA 721A6B MOV %n,Rn xfer 1a-1d to cpu (u19)

F5ED 5204 MOV %n,B 1st four of ID number

F5EF 9A6B LDA *Rn


```

F5F1 F0 TRAP 15 ----> F2CB
F5F2 D36B INC Rn
F5F4 CAF9 DJNZ B to f5ef
F5F6 8CFDC8 BR @n

```

####

```

*** FDD1 (IA) *** F5F9 22ED MOV %n,A *** ramcheck 5c-4a ***
of data from cpu (u19)

```

```

F5FB 725C6B MOV %n,Rn
F5FE 9D6B CMPA *Rn
F600 E619 JNZ/JNE
F602 7D4A6B CMP %n,Rn
F605 E205 JZ/JEQ
F607 B3 INC A

```

```

F608 D26B DEC Rn
F60A EOF2 JMP
F60C 227F MOV %n,A

```

*** zero ram !!! ***

```

F60E C5 CLR B
F60F 0D LDSP
F610 06 DINT

```

```

F611 C8 PUSH B
F612 BAFD DJNZ A
F614 5279 MOV %n,B

```

SP = 79

```

F616 0D LDSP
F617 EA TRAP 21 ----> F73D
F618 D179 MOV B,Rn

```

```

F61A 05 EINT
F61B 8CFDC8 BR @n

```

####

```

*** FDD1 (I11) *** F61E 98774B MOVD Rn,Rn
F621 42784C MOV Rn,Rn (76,77,78) -> (4a,4b,4c)
F624 D54D CLR Rn

```

```

F626 8800004F MOVD %n,Rn
F62A 88000051 MOVD %n,Rn (4d-51) = 00 5 bytes
F62E 8800426B MOVD %n,Rn 6a,6b = 0042

```

```

F632 ED TRAP 18 ----> F76B

```

```

F633 984B77 MOVD Rn,Rn (4a,4b,4c) -> (76,77,78)

```

```

F636 424C78 MOV Rn,Rn
F639 8CFDC8 BR @n

```

####

```

*** FDD1 (I12) *** F63C 22ED MOV %n,A ***** ram check *****
of received data from cpu

```

```

F63E 725C6B MOV %n,Rn
F641 9D6B CMPA *Rn
F643 E6D6 JNZ/JNE to F61B

```

?(5c-4a) = #ed-#10
exit if not

```

F645 7D4A6B CMP %n,Rn
F648 E205 JZ/JEQ F64F
F64A B3 INC A

```

```

F64B D26B DEC Rn
F64D EOF2 JMP to f641

```

***** checksum of u7 rom *****

```

F64F 88F0086B MOVD %n,Rn
F653 8800006D MOVD %n,Rn

```

```

F657 9A6B LDA *Rn
F659 48006D ADD Rn,Rn
F65C 79006C ADC %n,Rn

```

```

F65F 78016B ADD %n,Rn
F662 79006A ADC %n,Rn
F665 7D006A CMP %n,Rn

```

to f657

```

F668 E6ED JNZ/JNE
F66A C5 CLR B
F66B AAF006 LDA @n(B) A=$68

```


F66E	4D006D	CMP Rn,Rn	
F671	E642	JNZ/JNE	to F6B5
F673	C3	INC B	

F674	AAF006	LDA @n(B)	A=\$17
F677	4D006C	CMP Rn,Rn	
F67A	E639	JNZ/JNE	to F6B5 checksum failed

F67C	88007F03	MOVD %n,Rn	
------	----------	------------	--

F680	B5	CLR A	
F681	C5	CLR B	
F682	1203	MOV Rn,A	

F684	9B03	STA *Rn	
F686	B6	XCHB A	
F687	9A03	LDA *Rn	

F689	B6	XCHB A	
F68A	3D00	CMP Rn,B	
F68C	E627	JNZ/JNE	TO F6B5

F68E	B4	INV A	
F68F	9B03	STA *Rn	
F691	B6	XCHB A	

F692	9A03	LDA *Rn	
F694	B6	XCHB A	
F695	3D00	CMP Rn,B	

F697	E61C	JNZ/JNE	F6B5
F699	DB03	DECD Rn	
F69B	7D3B03	CMP %n,Rn	

F69E	E604	JNZ/JNE	F6A4
F6A0	88001903	MOVD %n,Rn	

F6A4	7D0303	CMP %n,Rn	
F6A7	E6D9	JNZ/JNE	F682

F6A9	2255	MOV %n,A	
F6AB	720202	MOV %n,Rn	
F6AE	D402	INV Rn	

F6B0	7DFD02	CMP %n,Rn	
F6B3	E202	JZ/JEQ	

F6B5	22AA	MOV %n,A	
------	------	----------	--

F6B7	A20006	MOVP %n,Pn	
F6BA	A20008	MOVP %n,Pn	
F6BD	A40108	ORP %n,Pn	

F6C0	A3FE08	ANDP %n,Pn	
F6C3	A20208	MOVP %n,Pn	
F6C6	A40108	ORP %n,Pn	

F6C9	A3FE08	ANDP %n,Pn	
F6CC	8206	MOVP A,Pn	
F6CE	A40108	ORP %n,Pn	

F6D1	A3FE08	ANDP %n,Pn	
F6D4	800A	MOVP Pn,A	
F6D6	8206	MOVP A,Pn	

F6D8	A40108	ORP %n,Pn	
F6DB	A3FE08	ANDP %n,Pn	
F6DE	8004	MOVP Pn,A	

F6E0	8206	MOVP A,Pn	
F6E2	A40108	ORP %n,Pn	
F6E5	A3FE08	ANDP %n,Pn	

F6E8	A20006	MOVP %n,Pn	
------	--------	------------	--


```

F6EB A40108 ORP %n,Pn
F6EE A3FE08 ANDP %n,Pn
F6F1 A20106 MOVP %n,Pn
F6F4 A40108 ORP %n,Pn
F6F7 A3FE08 ANDP %n,Pn
F6FA A20206 MOVP %n,Pn
F6FD A40108 ORP %n,Pn
F700 A3FE08 ANDP %n,Pn
F703 2204 MOV %n,A

```

```

F705 B4 INV A
F706 C0 MOV A,B
F707 B4 INV A
F708 8408 ORP A,Pn
F70A 8406 ORP A,Pn
F70C A40108 ORP %n,Pn
F70F 9308 ANDP B,Pn
F711 9306 ANDP B,Pn
F713 A3FE08 ANDP %n,Pn
F716 BF RLC A
F717 E7EC JNC/JL to F705
F719 A20008 MOVP %n,Pn
F71C A40108 ORP %n,Pn
F71F A3FE08 ANDP %n,Pn
F722 8CF63C BR @n

```

*** FDD1 (I13) *** F725 124A MOV Rn,A

```

F727 F0 TRAP 15 ---> F2CB xfer r4A to cpu (u19)
F728 8CFDC8 BR @n #####

```

=====

TRAP 14 create B through 32 BYTE XOR F59B,F5CA,F5D3 (39 - 1A)

```

F72B 72396B MOV %n,Rn Rn(6B) <--- 39
F72E C5 CLR B B reg. <--- 00
F72F 9A6B LDA *Rn A reg. <--- address in Rn(6B) <-\
F731 3800 ADD Rn,B B reg. <--- B reg. + Rn(00) |
F733 356B XOR Rn,B B reg. <--- B reg. .XOR. Rn(6B) |
F735 D26B DEC Rn Rn(6B) <--- Rn(6B) - 1 |
F737 7D196B CMP %n,Rn is Rn(6B) = 19 ? |
F73A E6F3 JNZ/JNE if not then goto F72F -----/
F73C 0A RETS if Rn(6B) = 19 then return to sender

```

=====

TRAP 21 create B through 3 byte XOR F471,F534,F5E0,F617 (3F - 41)

```

F73D 72416B MOV %n,Rn Rn(6B) <--- 41
F740 C5 CLR B B reg. <--- 00
F741 9A6B LDA *Rn A reg. <--- address in Rn(6B) <-\
F743 3800 ADD Rn,B B reg. <--- B reg. + Rn(00) |
F745 356B XOR Rn,B B reg. <--- B reg. .XOR. Rn(6B) |
F747 D26B DEC Rn Rn(6B) <--- Rn(6B) - 1 |
F749 7D3E6B CMP %n,Rn is Rn(6B) = 3E ? |
F74C E6F3 JNZ/JNE if not then goto F72F -----/
F74E 0A RETS if Rn(6B) = 3E then return to sender

```

=====

TRAP 19 REGISTER XFER F366,F372,F388,F394,F39D,F3B1,F3C3,F3E2,F3EE,F403,F4A6,F4C0,F4D7,F515,F552,F59A,F5C0,F5C9

```

F74F 9A6B LDA *Rn A reg. <--- value at address in Rn(6B) <-----\
F751 9B6D STA *Rn A reg. ---> address in Rn(6D) |
F753 D36B INC Rn Rn(6B) <--- Rn(6B) + 1 |

```


F755	D36D	INC Rn	Rn(6D) <--- Rn(6D) + 1	
F757	CAF6	DJNZ B	B reg. <--- B reg. - 1: if B <> 0 then -----/	
F759	0A	RETS	return to sender	

TRAP 17	7 BYTE XOR	F3CC -> (r13 - r19) xor (r02 - r08) -> (r02 - r08)
		F483 -> (r4a - r50) xor (r0c - r12) -> (r0c - r12)

F75A	9A6B	LDA *Rn	A reg. <--- value at address in Rn(6B) <-----\	
F75C	D071	MOV A, Rn	Rn(71) <--- A reg.	
F75E	9A6D	LDA *Rn	A reg. <--- value at address in Rn(6D)	
F760	1571	XOR Rn, A	A reg. <--- A reg. .XOR. Rn(71)	
F762	9B6D	STA *Rn	A reg. ---> address in Rn(6D)	
F764	D36B	INC Rn	Rn(6B) <--- Rn(6B) + 1	
F766	D36D	INC Rn	Rn(6D) <--- Rn(6D) + 1	
F768	CAF0	DJNZ B	B reg. <--- B reg. - 1: if B <> 0 then -----/	
F76A	0A	RETS	return to sender	

TRAP 18	F35D, F37F, F3A8, F3D0, F417, F50C, F547, F632
	INITIAL VALUES FOR R6A AND 6B ARE ????????

F76B	A22006	MOVP %n, Pn	b5 = hi	
F76E	9A6B	LDA *Rn	LDA FROM TABLE SHOWN	
F770	D062	MOV A, Rn		
F772	D36B	INC Rn	** SETUP R62-68 , 7 BYTES , 56 BITS	
F774	9A6B	LDA *Rn		
F776	D063	MOV A, Rn		
F778	D36B	INC Rn		
F77A	9A6B	LDA *Rn		
F77C	D064	MOV A, Rn	initial data from :	IF CALLED FROM:
F77E	D36B	INC Rn	R 02 - 08	FD30
F780	9A6B	LDA *Rn	25 - 2B	F35D, F37F, F3A8
F782	D065	MOV A, Rn	2C - 32	" " "
F784	D36B	INC Rn	33 - 39	" " "
F786	9A6B	LDA *Rn	42 - 48	F547, F632
F788	D066	MOV A, Rn	52 - 58	F417
F78A	D36B	INC Rn	S BOX	F50C
F78C	9A6B	LDA *Rn		
F78E	D067	MOV A, Rn		
F790	D36B	INC Rn		
F792	9A6B	LDA *Rn		
F794	D068	MOV A, Rn		
F796	D56A	CLR Rn		++++

F798	B5	CLR A	
F799	77406202	BTJZ %n, Rn	
F79D	2440	OR %n, A	
F79F	77206302	BTJZ %n, Rn	
F7A3	2420	OR %n, A	
F7A5	77106402	BTJZ %n, Rn	
F7A9	2410	OR %n, A	
F7AB	77086502	BTJZ %n, Rn	
F7AF	2408	OR %n, A	
F7B1	77046602	BTJZ %n, Rn	
F7B5	2404	OR %n, A	
F7B7	77026702	BTJZ %n, Rn	
F7BB	2402	OR %n, A	
F7BD	77016802	BTJZ %n, Rn	
F7C1	2401	OR %n, A	
F7C3	D061	MOV A, Rn	-----R61
F7C5	B5	CLR A	

F7C6	77806802	BTJZ %n,Rn	
F7CA	2440	OR %n,A	
F7CC	77206202	BTJZ %n,Rn	
F7D0	2420	OR %n,A	
F7D2	77106302	BTJZ %n,Rn	
F7D6	2410	OR %n,A	
F7D8	77086402	BTJZ %n,Rn	
F7DC	2408	OR %n,A	
F7DE	77046502	BTJZ %n,Rn	
F7E2	2404	OR %n,A	
F7E4	77026602	BTJZ %n,Rn	
F7E8	2402	OR %n,A	
F7EA	77016702	BTJZ %n,Rn	
F7EE	2401	OR %n,A	
F7F0	D060	MOV A,Rn	-----R60
F7F2	B5	CLR A	
F7F3	77806702	BTJZ %n,Rn	
F7F7	2440	OR %n,A	
F7F9	77406802	BTJZ %n,Rn	
F7FD	2420	OR %n,A	
F7FF	77106202	BTJZ %n,Rn	
F803	2410	OR %n,A	
F805	77086302	BTJZ %n,Rn	
F809	2408	OR %n,A	
F80B	77046402	BTJZ %n,Rn	
F80F	2404	OR %n,A	
F811	77026502	BTJZ %n,Rn	
F815	2402	OR %n,A	
F817	77016602	BTJZ %n,Rn	
F81B	2401	OR %n,A	
F81D	D05F	MOV A,Rn	-----R5F
F81F	B5	CLR A	
F820	77806602	BTJZ %n,Rn	
F824	2440	OR %n,A	
F826	77406702	BTJZ %n,Rn	
F82A	2420	OR %n,A	
F82C	77206802	BTJZ %n,Rn	
F830	2410	OR %n,A	
F832	77086202	BTJZ %n,Rn	
F836	2408	OR %n,A	
F838	77046302	BTJZ %n,Rn	
F83C	2404	OR %n,A	
F83E	77026402	BTJZ %n,Rn	
F842	2402	OR %n,A	
F844	77016502	BTJZ %n,Rn	
F848	2401	OR %n,A	
F84A	D05E	MOV A,Rn	-----R5E
F84C	B5	CLR A	
F84D	77016202	BTJZ %n,Rn	
F851	2440	OR %n,A	
F853	77806202	BTJZ %n,Rn	
F857	2420	OR %n,A	
F859	77406302	BTJZ %n,Rn	
F85D	2410	OR %n,A	
F85F	77206402	BTJZ %n,Rn	
F863	2408	OR %n,A	
F865	77106502	BTJZ %n,Rn	
F869	2404	OR %n,A	
F86B	77086602	BTJZ %n,Rn	
F86F	2402	OR %n,A	

F871	77046702	BTJZ %n,Rn
F875	2401	OR %n,A
F877	D05D	MOV A,Rn -----R5D
F879	B5	CLR A
F87A	77026802	BTJZ %n,Rn
F87E	2440	OR %n,A
F880	77026202	BTJZ %n,Rn
F884	2420	OR %n,A
F886	77016302	BTJZ %n,Rn
F88A	2410	OR %n,A
F88C	77806302	BTJZ %n,Rn
F890	2408	OR %n,A
F892	77406402	BTJZ %n,Rn
F896	2404	OR %n,A
F898	77206502	BTJZ %n,Rn
F89C	2402	OR %n,A
F89E	77106602	BTJZ %n,Rn
F8A2	2401	OR %n,A
F8A4	D05C	MOV A,Rn -----R5C
F8A6	B5	CLR A
F8A7	77086702	BTJZ %n,Rn
F8AB	2440	OR %n,A
F8AD	77046802	BTJZ %n,Rn
F8B1	2420	OR %n,A
F8B3	77046202	BTJZ %n,Rn
F8B7	2410	OR %n,A
F8B9	77026302	BTJZ %n,Rn
F8BD	2408	OR %n,A
F8BF	77016402	BTJZ %n,Rn
F8C3	2404	OR %n,A
F8C5	77806402	BTJZ %n,Rn
F8C9	2402	OR %n,A
F8CB	77406502	BTJZ %n,Rn
F8CF	2401	OR %n,A
F8D1	D05B	MOV A,Rn -----R5B
F8D3	B5	CLR A
F8D4	77206602	BTJZ %n,Rn
F8D8	2440	OR %n,A
F8DA	77106702	BTJZ %n,Rn
F8DE	2420	OR %n,A
F8E0	77086802	BTJZ %n,Rn
F8E4	2410	OR %n,A
F8E6	77806502	BTJZ %n,Rn
F8EA	2408	OR %n,A
F8EC	77406602	BTJZ %n,Rn
F8F0	2404	OR %n,A
F8F2	77206702	BTJZ %n,Rn
F8F6	2402	OR %n,A
F8F8	77106802	BTJZ %n,Rn
F8FC	2401	OR %n,A
F8FE	D05A	MOV A,Rn -----R5A
=====		
F900	5208	MOV %n,B
F902	72406E	MOV %n,Rn
INITIAL PERMUTATION IP		
F905	B5	CLR A
F906	476E4A02	BTJZ Rn,Rn
F90A	2480	OR %n,A
F90C	476E4B02	BTJZ Rn,Rn
F910	2440	OR %n,A

51-4a MSB -> LSB
bit 0 -> bit 64
Input block (51-4a) subjected to IP,
According to table -> FIPS PUB 46 pg.9

F912	476E4C02	BTJZ Rn,Rn	
F916	2420	OR %n,A	
F918	476E4D02	BTJZ Rn,Rn	
F91C	2410	OR %n,A	
F91E	476E4E02	BTJZ Rn,Rn	
F922	2408	OR %n,A	
F924	476E4F02	BTJZ Rn,Rn	
F928	2404	OR %n,A	
F92A	476E5002	BTJZ Rn,Rn	
F92E	2402	OR %n,A	
F930	476E5102	BTJZ Rn,Rn	
F934	2401	OR %n,A	
F936	AB0051	STA @n(B)	R52-59
F939	DD6E	RRC Rn	*****
F93B	DD6E	RRC Rn	
F93D	CAC6	DJNZ B	to F905
F93F	721071	MOV %n,Rn	ROUND COUNT
F942	B5	CLR A	BEGINNING OF THE 16 ROUNDS
F943	77016002	BTJZ %n,Rn	
F947	2480	OR %n,A	
F949	77105F02	BTJZ %n,Rn	
F94D	2440	OR %n,A	32 bit split
F94F	77086002	BTJZ %n,Rn	
F953	2420	OR %n,A	
F955	77105E02	BTJZ %n,Rn	
F959	2410	OR %n,A	
F95B	77406102	BTJZ %n,Rn	
F95F	2408	OR %n,A	
F961	77046102	BTJZ %n,Rn	
F965	2404	OR %n,A	
F967	D069	MOV A,Rn	-----R69
F969	B5	CLR A	
F96A	77106102	BTJZ %n,Rn	
F96E	2480	OR %n,A	
F970	77015E02	BTJZ %n,Rn	
F974	2440	OR %n,A	
F976	77405F02	BTJZ %n,Rn	
F97A	2420	OR %n,A	
F97C	77026102	BTJZ %n,Rn	
F980	2410	OR %n,A	
F982	77015F02	BTJZ %n,Rn	
F986	2408	OR %n,A	
F988	77106002	BTJZ %n,Rn	
F98C	2404	OR %n,A	
F98E	D068	MOV A,Rn	-----R68
F990	B5	CLR A	
F991	77205E02	BTJZ %n,Rn	
F995	2480	OR %n,A	
F997	77045F02	BTJZ %n,Rn	
F99B	2440	OR %n,A	
F99D	77046002	BTJZ %n,Rn	
F9A1	2420	OR %n,A	
F9A3	77086102	BTJZ %n,Rn	
F9A7	2410	OR %n,A	
F9A9	77045E02	BTJZ %n,Rn	
F9AD	2408	OR %n,A	
F9AF	77406002	BTJZ %n,Rn	
F9B3	2404	OR %n,A	

F9B5	D067	MOV A,Rn -----R67
F9B7	B5	CLR A
F9B8	77205F02	BTJZ %n,Rn
F9BC	2480	OR %n,A
F9BE	77016102	BTJZ %n,Rn
F9C2	2440	OR %n,A
F9C4	77025E02	BTJZ %n,Rn
F9C8	2420	OR %n,A
F9CA	77025F02	BTJZ %n,Rn
F9CE	2410	OR %n,A
F9D0	77026002	BTJZ %n,Rn
F9D4	2408	OR %n,A
F9D6	77206102	BTJZ %n,Rn
F9DA	2404	OR %n,A
F9DC	D066	MOV A,Rn -----R66
=====		
F9DE	B5	CLR A
F9DF	77025C02	BTJZ %n,Rn
F9E3	2480	OR %n,A
F9E5	77105A02	BTJZ %n,Rn
F9E9	2440	OR %n,A
F9EB	77105D02	BTJZ %n,Rn
F9EF	2420	OR %n,A
F9F1	77205C02	BTJZ %n,Rn
F9F5	2410	OR %n,A
F9F7	77045B02	BTJZ %n,Rn
F9FB	2408	OR %n,A
F9FD	77025A02	BTJZ %n,Rn
FA01	2404	OR %n,A
FA03	D065	MOV A,Rn -----R65
FA05	B5	CLR A
FA06	77205D02	BTJZ %n,Rn
FA0A	2480	OR %n,A
FA0C	77045C02	BTJZ %n,Rn
FA10	2440	OR %n,A
FA12	77205A02	BTJZ %n,Rn
FA16	2420	OR %n,A
FA18	77105B02	BTJZ %n,Rn
FA1C	2410	OR %n,A
FA1E	77045D02	BTJZ %n,Rn
FA22	2408	OR %n,A
FA24	77025B02	BTJZ %n,Rn
FA28	2404	OR %n,A
FA2A	D064	MOV A,Rn -----R64
FA2C	B5	CLR A
FA2D	77205B02	BTJZ %n,Rn
FA31	2480	OR %n,A
FA33	77015B02	BTJZ %n,Rn
FA37	2440	OR %n,A
FA39	77085C02	BTJZ %n,Rn
FA3D	2420	OR %n,A
FA3F	77015A02	BTJZ %n,Rn
FA43	2410	OR %n,A
FA45	77025D02	BTJZ %n,Rn
FA49	2408	OR %n,A
FA4B	77085A02	BTJZ %n,Rn
FA4F	2404	OR %n,A
FA51	D063	MOV A,Rn -----R63
FA53	B5	CLR A
FA54	77085B02	BTJZ %n,Rn

FA58	2480	OR %n,A	
FA5A	77015C02	BTJZ %n,Rn	
FA5E	2440	OR %n,A	
FA60	77405A02	BTJZ %n,Rn	
FA64	2420	OR %n,A	
FA66	77405C02	BTJZ %n,Rn	
FA6A	2410	OR %n,A	
FA6C	77405D02	BTJZ %n,Rn	
FA70	2408	OR %n,A	
FA72	77085D02	BTJZ %n,Rn	
FA76	2404	OR %n,A	
FA78	D062	MOV A,Rn	-----R62
.....			
FA7A	72016E	MOV %n,Rn	
FA7D	7D1071	CMP %n,Rn	
FA80	E211	JZ/JEQ	to FA93 determine # of shifts
FA82	7D0971	CMP %n,Rn	for
FA85	E20C	JZ/JEQ	1st,2nd,9th and 16th rounds
FA87	7D0271	CMP %n,Rn	
FA8A	E207	JZ/JEQ	to FA93 "subkey generation"
FA8C	7D0171	CMP %n,Rn	
FA8F	E202	JZ/JEQ	to FA93
FA91	D36E	INC Rn	
FA93	DD5E	RRC Rn	
FA95	E703	JNC/JL	to FA9A
FA97	748061	OR %n,Rn	R5A-61
FA9A	DD61	RRC Rn	
FA9C	E703	JNC/JL	
FA9E	748060	OR %n,Rn	
FAA1	DD60	RRC Rn	
FAA3	E703	JNC/JL	
FAA5	74805F	OR %n,Rn	
FAA8	DD5F	RRC Rn	
FAAA	E703	JNC/JL	
FAAC	74405E	OR %n,Rn	
FAAF	DD5A	RRC Rn	
FAB1	E703	JNC/JL	
FAB3	74805D	OR %n,Rn	
FAB6	DD5D	RRC Rn	
FAB8	E703	JNC/JL	
FABA	74805C	OR %n,Rn	
FABD	DD5C	RRC Rn	
FABF	E703	JNC/JL	
FAC1	74805B	OR %n,Rn	
FAC4	DD5B	RRC Rn	
FAC6	E703	JNC/JL	
FAC8	74405A	OR %n,Rn	
FACB	227F	MOV %n,A	CLEAR THE MSB of (5a-61)
FACD	43005A	AND Rn,Rn	
FAD0	43005B	AND Rn,Rn	
FAD3	43005C	AND Rn,Rn	
FAD6	43005D	AND Rn,Rn	
FAD9	43005E	AND Rn,Rn	
FADC	43005F	AND Rn,Rn	
FADF	430060	AND Rn,Rn	
FAE2	430061	AND Rn,Rn	
FAE5	DA6EAB	DJNZ Rn	to FA93

FAE8 98534F MOVD Rn,Rn
 FAEB 985551 MOVD Rn,Rn (52,53,54,55) -> (4e,4f,50,51)

1	FAEE	B5	CLR A	
2	FAEF	77014E02	BTJZ %n,Rn	the following sections figure the
3	FAF3	2480	OR %n,A	6 bit values that will be used to
4	FAF5	77805102	BTJZ %n,Rn	set the 4 bit sequences from the
5	FAF9	2440	OR %n,A	"s" boxes
6	FAFB	77405102	BTJZ %n,Rn	
7	FAFF	2420	OR %n,A	51-4e
8	FB01	77205102	BTJZ %n,Rn	bit 32 -> bit 1
9	FB05	2410	OR %n,A	32 bit input -> 48 bit output
10	FB07	77105102	BTJZ %n,Rn	(51-4e) (69-62)
11	FB0B	2408	OR %n,A	function E for calculation of f(R,K)
12	FB0D	77085102	BTJZ %n,Rn	According to the E bit selection table --
13	FB11	2404	OR %n,A	FIPS PUB 46 pg.11
14	FB13	450069	XOR Rn,Rn	-----R69
15	FB16	B5	CLR A	
16	FB17	77105102	BTJZ %n,Rn	
17	FB1B	2480	OR %n,A	
18	FB1D	77085102	BTJZ %n,Rn	
19	FB21	2440	OR %n,A	
20	FB23	77045102	BTJZ %n,Rn	
21	FB27	2420	OR %n,A	
22	FB29	77025102	BTJZ %n,Rn	
23	FB2D	2410	OR %n,A	
24	FB2F	77015102	BTJZ %n,Rn	
25	FB33	2408	OR %n,A	
26	FB35	77805002	BTJZ %n,Rn	
27	FB39	2404	OR %n,A	
28	FB3B	450068	XOR Rn,Rn	-----R68
29	FB3E	B5	CLR A	
30	FB3F	77015102	BTJZ %n,Rn	
31	FB43	2480	OR %n,A	
32	FB45	77805002	BTJZ %n,Rn	
33	FB49	2440	OR %n,A	
34	FB4B	77405002	BTJZ %n,Rn	
35	FB4F	2420	OR %n,A	
36	FB51	77205002	BTJZ %n,Rn	
37	FB55	2410	OR %n,A	
38	FB57	77105002	BTJZ %n,Rn	
39	FB5B	2408	OR %n,A	
40	FB5D	77085002	BTJZ %n,Rn	
41	FB61	2404	OR %n,A	
42	FB63	450067	XOR Rn,Rn	-----R67
43	FB66	B5	CLR A	
44	FB67	77105002	BTJZ %n,Rn	
45	FB6B	2480	OR %n,A	
46	FB6D	77085002	BTJZ %n,Rn	
47	FB71	2440	OR %n,A	
48	FB73	77045002	BTJZ %n,Rn	
49	FB77	2420	OR %n,A	
50	FB79	77025002	BTJZ %n,Rn	
51	FB7D	2410	OR %n,A	
52	FB7F	77015002	BTJZ %n,Rn	
53	FB83	2408	OR %n,A	
54	FB85	77804F02	BTJZ %n,Rn	
55	FB89	2404	OR %n,A	
56	FB8B	450066	XOR Rn,Rn	-----R66
57	FB8E	B5	CLR A	

FB8F	77015002	BTJZ %n,Rn	
FB93	2480	OR %n,A	
FB95	77804F02	BTJZ %n,Rn	
FB99	2440	OR %n,A	
FB9B	77404F02	BTJZ %n,Rn	
FB9F	2420	OR %n,A	
FBA1	77204F02	BTJZ %n,Rn	
FBA5	2410	OR %n,A	
FBA7	77104F02	BTJZ %n,Rn	
FBAB	2408	OR %n,A	
FBAD	77084F02	BTJZ %n,Rn	
FBB1	2404	OR %n,A	
FBB3	450065	XOR Rn,Rn	-----R65
FBB6	B5	CLR A	
FBB7	77104F02	BTJZ %n,Rn	
FBBB	2480	OR %n,A	
FBBD	77084F02	BTJZ %n,Rn	
FBC1	2440	OR %n,A	
FBC3	77044F02	BTJZ %n,Rn	
FBC7	2420	OR %n,A	
FBC9	77024F02	BTJZ %n,Rn	
FBCD	2410	OR %n,A	
FBCF	77014F02	BTJZ %n,Rn	
FBD3	2408	OR %n,A	
FBD5	77804E02	BTJZ %n,Rn	
FBD9	2404	OR %n,A	
FBD8	450064	XOR Rn,Rn	-----R64
FBDE	B5	CLR A	
FBD F	77014F02	BTJZ %n,Rn	
FBE3	2480	OR %n,A	
FBE5	77804E02	BTJZ %n,Rn	
FBE9	2440	OR %n,A	
FBE B	77404E02	BTJZ %n,Rn	
FBEF	2420	OR %n,A	
FBF1	77204E02	BTJZ %n,Rn	
FBF5	2410	OR %n,A	
FBF7	77104E02	BTJZ %n,Rn	
FBFB	2408	OR %n,A	
FBFD	77084E02	BTJZ %n,Rn	
FC01	2404	OR %n,A	
FC03	450063	XOR Rn,Rn	-----R63
FC06	B5	CLR A	
FC07	77104E02	BTJZ %n,Rn	
FC0B	2480	OR %n,A	
FC0D	77084E02	BTJZ %n,Rn	
FC11	2440	OR %n,A	
FC13	77044E02	BTJZ %n,Rn	
FC17	2420	OR %n,A	
FC19	77024E02	BTJZ %n,Rn	
FC1D	2410	OR %n,A	
FC1F	77014E02	BTJZ %n,Rn	
FC23	2408	OR %n,A	
FC25	77805102	BTJZ %n,Rn	
FC29	2404	OR %n,A	
FC2B	450062	XOR Rn,Rn	-----R62
.....
FC2E	3262	MOV Rn,B	set new round key
FC30	CC	RR B	
FC31	CC	RR B	B =< 63 stay within "s" box
FC32	AAF108	LDA @n(B)	

FC35	D062	MOV A,Rn	r62
FC37	3263	MOV Rn,B	
FC39	CC	RR B	
FC3A	CC	RR B	
FC3B	AAF188	LDA @n(B)	
FC3E	D063	MOV A,Rn	r63
FC40	3264	MOV Rn,B	
FC42	CC	RR B	
FC43	CC	RR B	
FC44	AAF148	LDA @n(B)	
FC47	D064	MOV A,Rn	r64
FC49	3265	MOV Rn,B	
FC4B	CC	RR B	
FC4C	CC	RR B	
FC4D	AAF108	LDA @n(B)	
FC50	D065	MOV A,Rn	r65
FC52	3266	MOV Rn,B	
FC54	CC	RR B	
FC55	CC	RR B	
FC56	AAFOC8	LDA @n(B)	
FC59	D066	MOV A,Rn	r66
FC5B	3267	MOV Rn,B	
FC5D	CC	RR B	
FC5E	CC	RR B	
FC5F	AAFO88	LDA @n(B)	
FC62	D067	MOV A,Rn	r67
FC64	3268	MOV Rn,B	
FC66	CC	RR B	
FC67	CC	RR B	
FC68	AAFO48	LDA @n(B)	
FC6B	D068	MOV A,Rn	r68
FC6D	3269	MOV Rn,B	
FC6F	CC	RR B	
FC70	CC	RR B	
FC71	AAFO08	LDA @n(B)	
FC74	D069	MOV A,Rn	r69
FC76	72596D	MOV %n,Rn	
FC79	B5	CLR A	R69-R62
FC7A	77016602	BTJZ %n,Rn	Bit 0 -> Bit 32
FC7E	2480	OR %n,A	Permutation function "P" for the
FC80	77026802	BTJZ %n,Rn	calculation of f(R,K)
FC84	2440	OR %n,A	per FIPS PUB 46 pg.12
FC86	77016502	BTJZ %n,Rn	
FC8A	2420	OR %n,A	32 bit in -> 32 bit out
FC8C	77086402	BTJZ %n,Rn	
FC90	2410	OR %n,A	
FC92	77086202	BTJZ %n,Rn	
FC96	2408	OR %n,A	
FC98	77016702	BTJZ %n,Rn	
FC9C	2404	OR %n,A	
FC9E	77016302	BTJZ %n,Rn	
FCA2	2402	OR %n,A	
FCA4	77086502	BTJZ %n,Rn	
FCA8	2401	OR %n,A	
FCAA	B6	XCHB A	
FCAB	9A6D	LDA *Rn	
FCAD	65	XOR B,A	
FCAE	9B6D	STA *Rn	R59
FCB0	D26D	DEC Rn	

convert 6 bit sequences
to 4 bit sequences
through the "s" boxes
(62-69) =< 0F

R69-R62
Bit 0 -> Bit 32
Permutation function "P" for the
calculation of f(R,K)
per FIPS PUB 46 pg.12

32 bit in -> 32 bit out

FCB2	B5	CLR A
FCB3	77086902	BTJZ %n, Rn
FCB7	2480	OR %n, A
FCB9	77026602	BTJZ %n, Rn
FCBD	2440	OR %n, A
FCBF	77026402	BTJZ %n, Rn
FCC3	2420	OR %n, A
FCC5	77046302	BTJZ %n, Rn
FCC9	2410	OR %n, A
FCCB	77086802	BTJZ %n, Rn
FCCF	2408	OR %n, A
FCD1	77046502	BTJZ %n, Rn
FCD5	2404	OR %n, A
FCD7	77026202	BTJZ %n, Rn
FCD8	2402	OR %n, A
FCDD	77046702	BTJZ %n, Rn
FCE1	2401	OR %n, A
FCE3	B6	XCHB A
FCE4	9A6D	LDA *Rn
FCE6	65	XOR B, A
FCE7	9B6D	STA *Rn -----R58
FCE9	D26D	DEC Rn
FCEB	B5	CLR A
FCEC	77046902	BTJZ %n, Rn
FCF0	2480	OR %n, A
FCF2	77016802	BTJZ %n, Rn
FCF6	2440	OR %n, A
FCF8	77016402	BTJZ %n, Rn
FCFC	2420	OR %n, A
FCFE	77046602	BTJZ %n, Rn
FD02	2410	OR %n, A
FD04	77016202	BTJZ %n, Rn
FD08	2408	OR %n, A
FD0A	77026302	BTJZ %n, Rn
FD0E	2404	OR %n, A
FD10	77026902	BTJZ %n, Rn
FD14	2402	OR %n, A
FD16	77086702	BTJZ %n, Rn
FD1A	2401	OR %n, A
FD1C	B6	XCHB A
FD1D	9A6D	LDA *Rn
FD1F	65	XOR B, A
FD20	9B6D	STA *Rn -----R57
FD22	D26D	DEC Rn
FD24	B5	CLR A
FD25	77026502	BTJZ %n, Rn
FD29	2480	OR %n, A
FD2B	77086602	BTJZ %n, Rn
FD2F	2440	OR %n, A
FD31	77046202	BTJZ %n, Rn
FD35	2420	OR %n, A
FD37	77046802	BTJZ %n, Rn
FD3B	2410	OR %n, A
FD3D	77046402	BTJZ %n, Rn
FD41	2408	OR %n, A
FD43	77026702	BTJZ %n, Rn
FD47	2404	OR %n, A
FD49	77016902	BTJZ %n, Rn
FD4D	2402	OR %n, A
FD4F	77086302	BTJZ %n, Rn

FD53	2401	OR %n,A	
FD55	B6	XCHB A	
FD56	9A6D	LDA *Rn	
FD58	65	XOR B,A	
FD59	9B6D	STA *Rn	-----R56
FD5B	7D0171	CMP %n,Rn	HAVE WE DONE 16 ROUNDS ?
FD5E	E217	JZ/JEQ	JMP IF SO
FD60	985363	MOVD Rn,Rn	(52,53,54,55) <--> (56,57,58,59)
FD63	985565	MOVD Rn,Rn	
FD66	985753	MOVD Rn,Rn	SWAP
FD69	985955	MOVD Rn,Rn	
FD6C	986357	MOVD Rn,Rn	
FD6F	986559	MOVD Rn,Rn	
FD72	D271	DEC Rn	decrement round counter
FD74	8CF942	BR @n	DO ANOTHER ROUND
FD77	5208	MOV %n,B	index for final perm.
FD79	72016E	MOV %n,Rn	
FD7C	B5	CLR A	FINAL PERMUTATION
FD7D	476E5502	BTJZ Rn,Rn	
FD81	2480	OR %n,A	59-4a MSB -> LSB
FD83	476E5902	BTJZ Rn,Rn	BIT 0 -> BIT 64
FD87	2440	OR %n,A	Input block (59-4a) subjected to IP-1
FD89	476E5402	BTJZ Rn,Rn	According to table -- FIPS PUB 46 P3.9
FD8D	2420	OR %n,A	
FD8F	476E5802	BTJZ Rn,Rn	
FD93	2410	OR %n,A	
FD95	476E5302	BTJZ Rn,Rn	
FD99	2408	OR %n,A	
FD9B	476E5702	BTJZ Rn,Rn	
FD9F	2404	OR %n,A	
FDA1	476E5202	BTJZ Rn,Rn	
FDA5	2402	OR %n,A	
FDA7	476E5602	BTJZ Rn,Rn	
FDAB	2401	OR %n,A	
FDAD	AB0049	STA @n(B)	r4a-r51 * * * * *
FDB0	DE6E	RL Rn	
FDB2	CAC8	DJNZ B	to FD7C
FDB4	88000063	MOVD %n,Rn	zero r62 - r69
FDB8	88000065	MOVD %n,Rn	
FDBC	88000067	MOVD %n,Rn	
FDC0	88000069	MOVD %n,Rn	
FDC4	A20006	MOVP %n,Pn	make B port zero
FDC7	0A	RETS	
FDC8	D56A	CLR Rn	++++
FDCA	D56C	CLR Rn	
FDCC	EB	TRAP 20 -> F26F	get command from cpu
FDCD	3272	MOV Rn,B	
FDCF	5C03	MPY %n,B	
FDD1	ACF233	BR @n(B)	execute command from CPU
FDD4	EOF2	JMP	to FDC8
FDD6	A2000B	MOVP %n,Pn	D port = input only
FDD9	E0FE	JMP	endless loop - wait for reset
FDDB	-----> FF3F	= all FF's	TRAP 0
FF40	A6800003	BTJOP %n,Pn	FULL EXPANSION MODE ?
FF44	8CF30F	BR @n	TRAP 1
FF47	8CAA00	BR @n	GO OFF CHIP IF SO.


```

FF4A A6800003 BTJOP %n,Pn
FF4E 8CF30F BR @n
FF51 8CAA00 BR @n
FF54 A6800003 BTJOP %n,Pn
FF58 8CF30F BR @n
FF5B 8CAA00 BR @n

```

TRAP 2

TRAP 3

```

FF5E A7010403 BTJZP %n,Pn TRAP's 0, 4, 22
IF LSB OF P4 (PORT A DATA VALUE) = 0 THEN JMP
(PIN 6) ---- THIS WILL CLEAR THE ID NUMBER !!!
FF62 8CF326 BR @n NORMAL ENTRY

```

This routine zeros the first 128 internal memory locations.

```

FF65 A24000 MOVP %n,Pn Peripheral expansion mode and DINT
FF68 C5 CLR B
FF69 227F MOV %n,A A <-- 7F
FF6B C5 CLR B clear B reg.
FF6C 0D LDSP SP <-- B reg. (i.e. SP = 0)
FF6D C8 PUSH B push B reg. on stack and INC stack
(i.e. [SP] <-- B reg. then SP = SP + 1)
FF6E BAFD DJNZ A DEC A reg. and JMP if <> 0 to FF6D
FF70 A28000 MOVP %n,Pn Full expansion mode
FF73 8CAA00 BR @n absolute BRANCH to AA00

```

```

FF76 ----> FFCF = all FF's TRAP 0
=====

```

```

FFD0 7800 TRAP 23 FFD2 FF5E TRAP 22

```

```

FFD4 F73D TRAP 21 ----- F471,F534,F5E0,F617
FFD6 F26F TRAP 20 ----- F002,FDCC
FFD8 F74F TRAP 19 ----- F366,F372,F388,F394,F39D,F3B1,F3C3
F3E2,F3EE,F403,F4A6,F4C0,F4D7,F515
F552,F59A,F5C0,F5C9
FFDA F76B TRAP 18 ----- F35D,F37F,F3A8,F3D0,F417,F50C,F547,F632
FFDC F75A TRAP 17 ----- F3CC,F483
FFDE F2FD TRAP 16 ----- F4B1,F4E0,F4EC,F4F8,F524
FFE0 F2CB TRAP 15 ----- F564,F56A,F57B,F5E9,F5F1,F727
FFE2 F72B TRAP 14 ----- F59B,F5CA,F5D3

```

```

FFE4 FFFF TRAP 13 FFE6 8800 TRAP 12 FFE8 FFFF TRAP 11
FFEA FFFF TRAP 10 FFEC FFFF TRAP 9 FFEE FFFF TRAP 8
FFF0 FFFF TRAP 7 FFF2 FFFF TRAP 6 FFF4 9800 TRAP 5
FFF6 FF5E TRAP 4 FFF8 FF54 TRAP 3 FFFA FF4A TRAP 2
FFFC FF40 TRAP 1 NO CALLS FOUND

```

```

FFFE FF5E TRAP 0

```

```

1203EBD4B40A68170E00040F0D070104
020E0F020B0D0801030A0A06060C0C0B
0509090500030708040F010C0E080802
0D04060902010B070F050C0B0903070E
030A0A000506000D0F03010D08040E07

```


060F0B020308040E090C070002010D0A
0C060009050B0A05000D0E08070A0B01
0A03040F0D040102050B08060C07060C
09000305020E0F090A0D000709000E09
060303040F06050A01020D080C05070E
0B0C040B020F08010D01060A040D0900
08060F09030800070B04010F020E0C03
050B0A050E02070C070D0D080E0B0305
0006060F09000A03010402070802050C
0B010C0A040E0F090A03060F09000006
0C0A0B01070D0D080F09010403050E0B
050C02070802040E020E0C0B0402010C
07040A070B0D060108050500030F0F0A
0D0300090E080906040B0208010C0B07
0A010D0E0702080D0F06090F0C000509
060A030400050E030C0A010F0A040F02
0907020C0609080500060D01030D040E
0E00070B05030B0809040E030F02050C
020908050C0F030A070B000E04010A07
01060D000B08060D040D0B00020B0E07
0F04000908010D0A030E0C030905070C
05020A0F060801060106040B0B0D0D08
0C010304070A0E070A090F050600080F
000E05020903020C0D01020F080D0408
060A0F030B0701040A0C090503060E0B
0500000E0C09070207020B01040E0107
09040C0A0E08020D000F060C0A090D00
0F0303050506080B65666972696E67CE
354E8DE017C50CB05C4C5A7108879105
01080C13040401010214090801020101
0114028CF3438CF36A8CF38C8CF3B58C
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288CF5F98CF57F8CF5B48CF5D38CF56E
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724A6B72426D5208EC8CFDC8724A6B72
136D5207EC72426B724A6D5208EC323C
53035C07581ED66BED72426D724A6B52
08EC8CFDC898533E42543C72426B7202

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56

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[illegible]

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FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

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3	0F8CAA00A68000038CF30F8CAA00A701	3
4	04038CF326A24000C5227FC50DC8BAFD	4
5	A280008CAA00FFFFFFFFFFFFFFFFFFFFFF	5
6	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	6
7	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	7
8	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	8
9	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	9
10	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	10
11	7800FF5EF73DF26FF74FF76BF75AF2FD	11
12	F2CBF72BFFFF8800FFFFFFFFFFFFFFFF	12
13	FFFFFFFFF9800FF5EFF54FF4AFF40FF5E	13
14		14
15		15
16		16
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